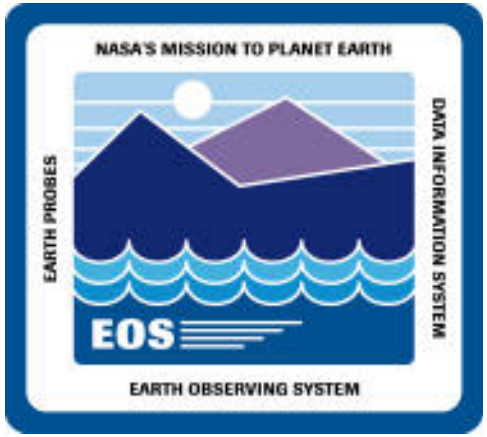


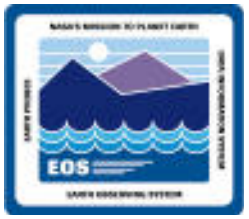
Report Generation Service

Phil Miller

pmiller@eos.hitc.com

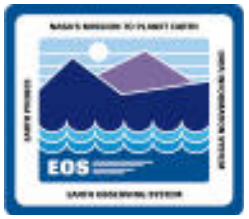
16 April 96

Report Generation Service



- Driving Requirements
- Software Architecture
- User Interface
- Object Model
- Dynamic Model
- Background Materials
  - Functional Model
  - Sample Reports

Driving Requirements



Provide a service for M&O staff to access detailed and summary system management information in the areas of:

- **performance**
- **faults**
- **configuration**
- **security**
- **accountability**

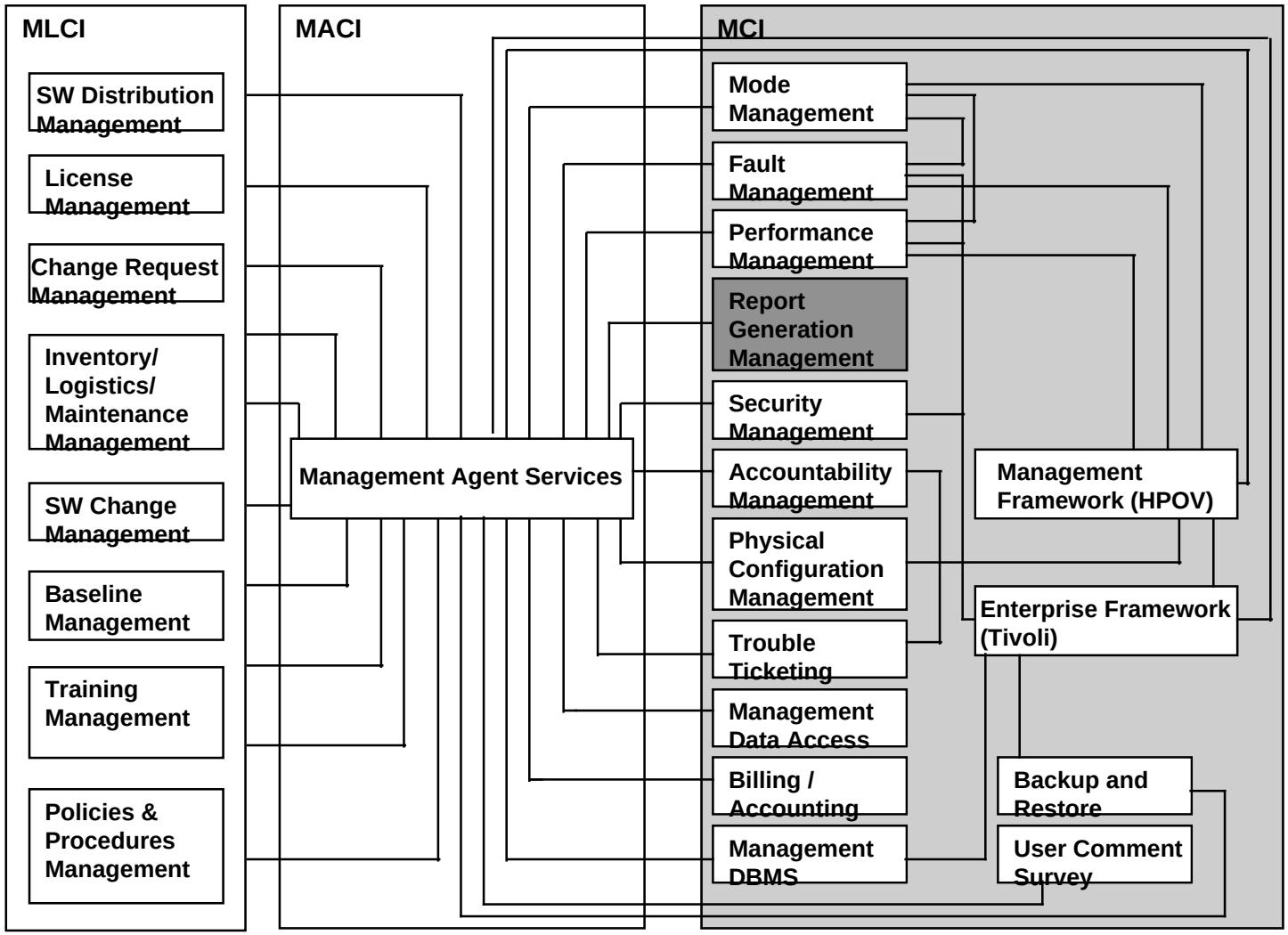
Provide *a workbench* for M&O *data specialists* to design/ execute reports and adhoc queries.

Provide for the generation of standard management reports automatically on a periodic basis, e.g., daily/weekly.

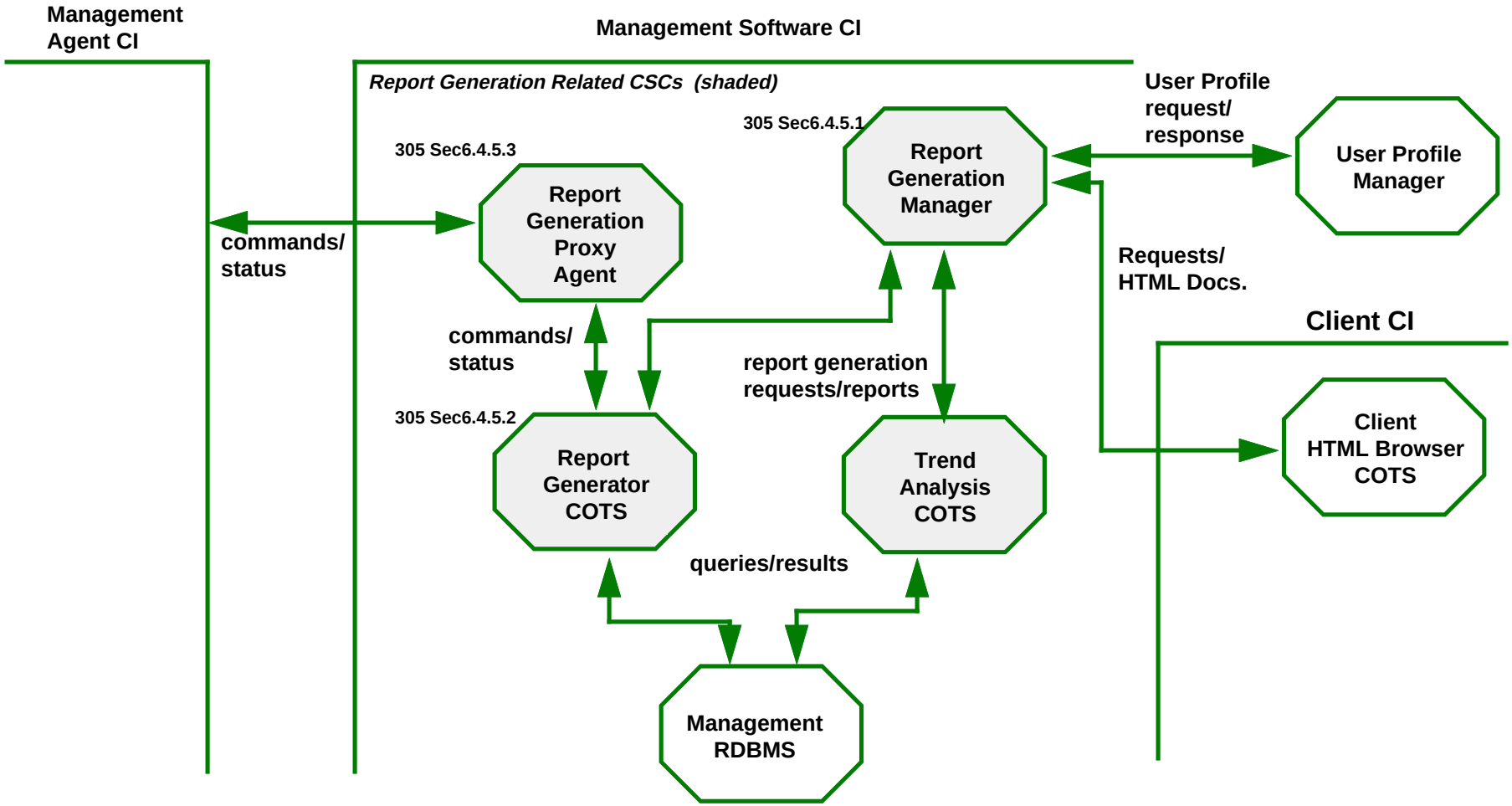
Provide an HTML-based interface for non-data specialists to view standard reports and to make limited adhoc queries.

Define a complement of standard management reports at the local site (LSM) and system (SMC) level.

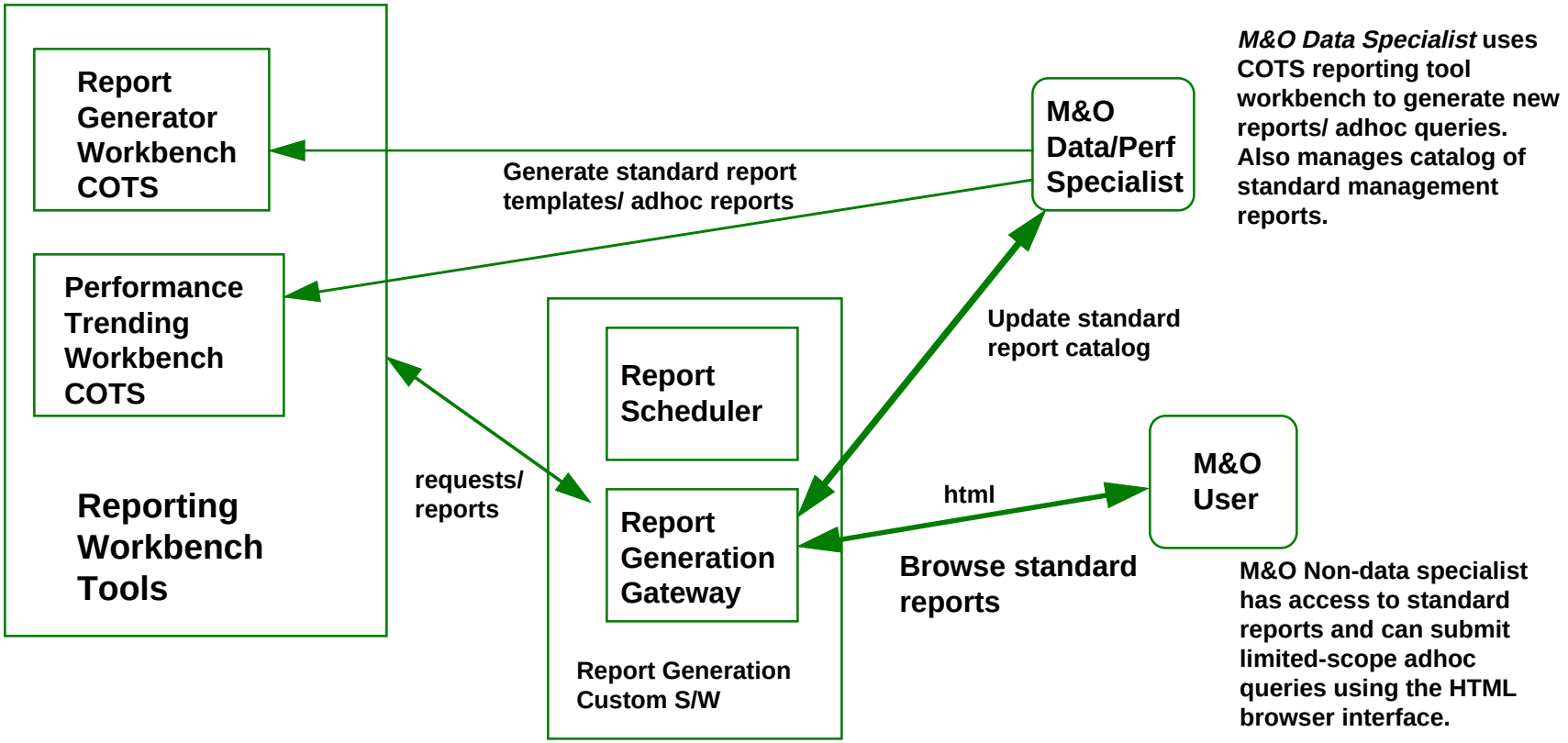
MSS Software Architecture Overview



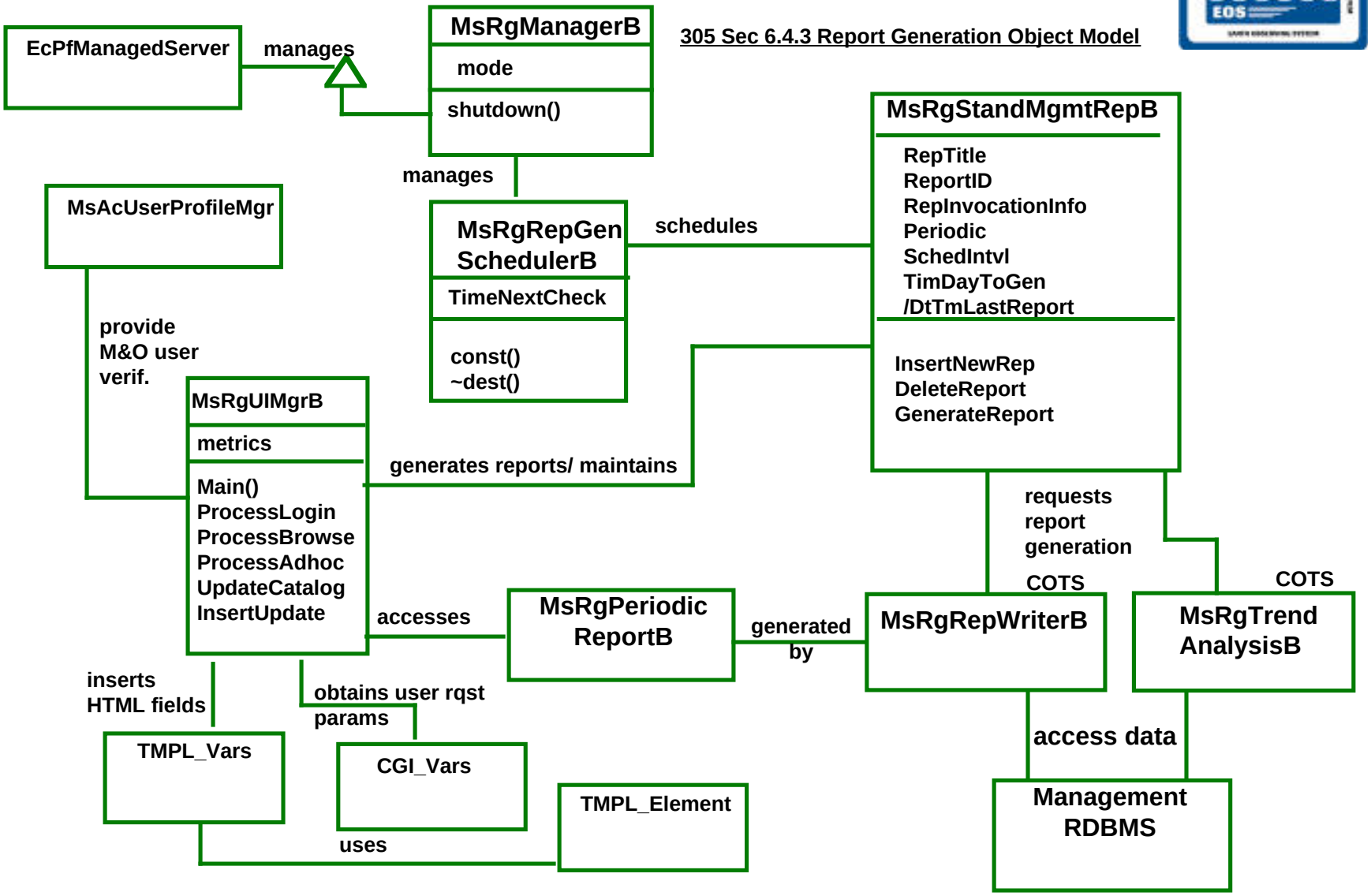
Report Generation Software Architecture



User Interface



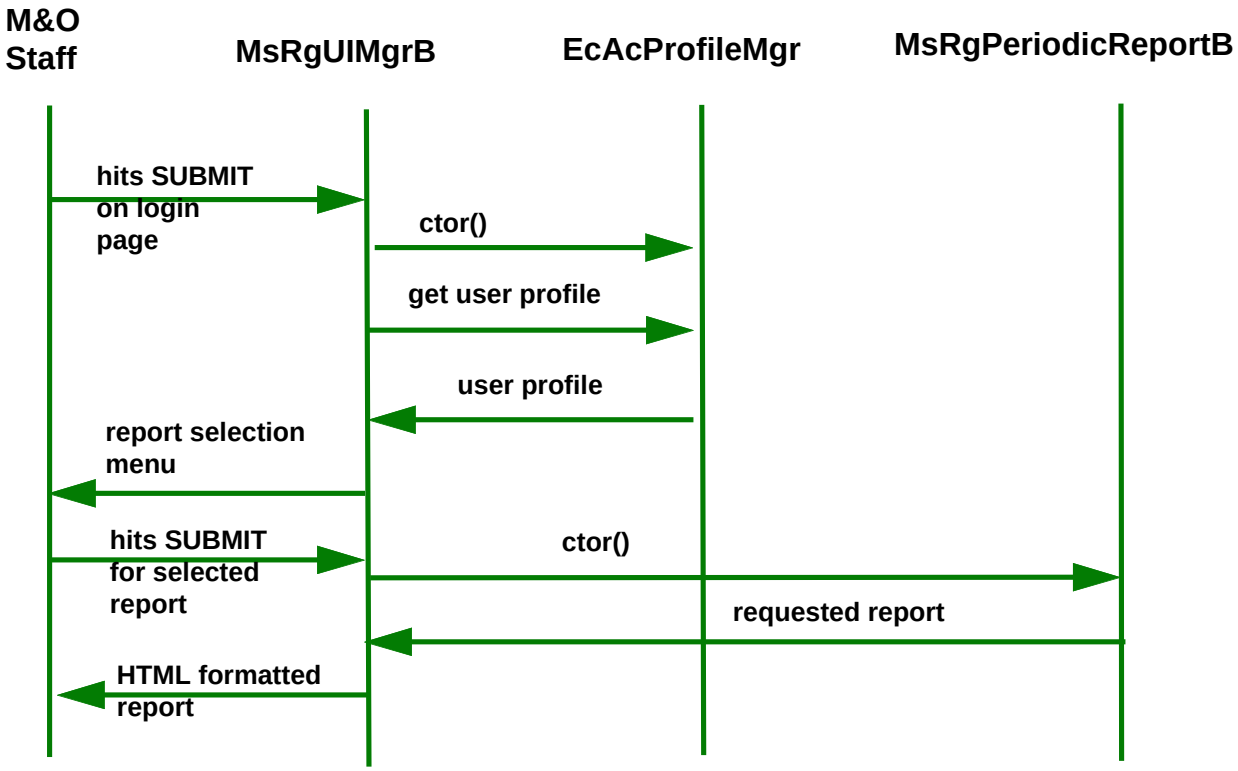
Object Model



Dynamic Model

Event Traces	DID 305 Reference
Browse a pregenerated standard report.	Sec 6.4.4.1
Generate an adhoc report.	Sec 6.4.4.2
Define a new standard report and add it to the standard report catalog.	Sec 6.4.4.3

Browse a Standard Report Scenario Diagram



Browse a Standard Report Scenario Description

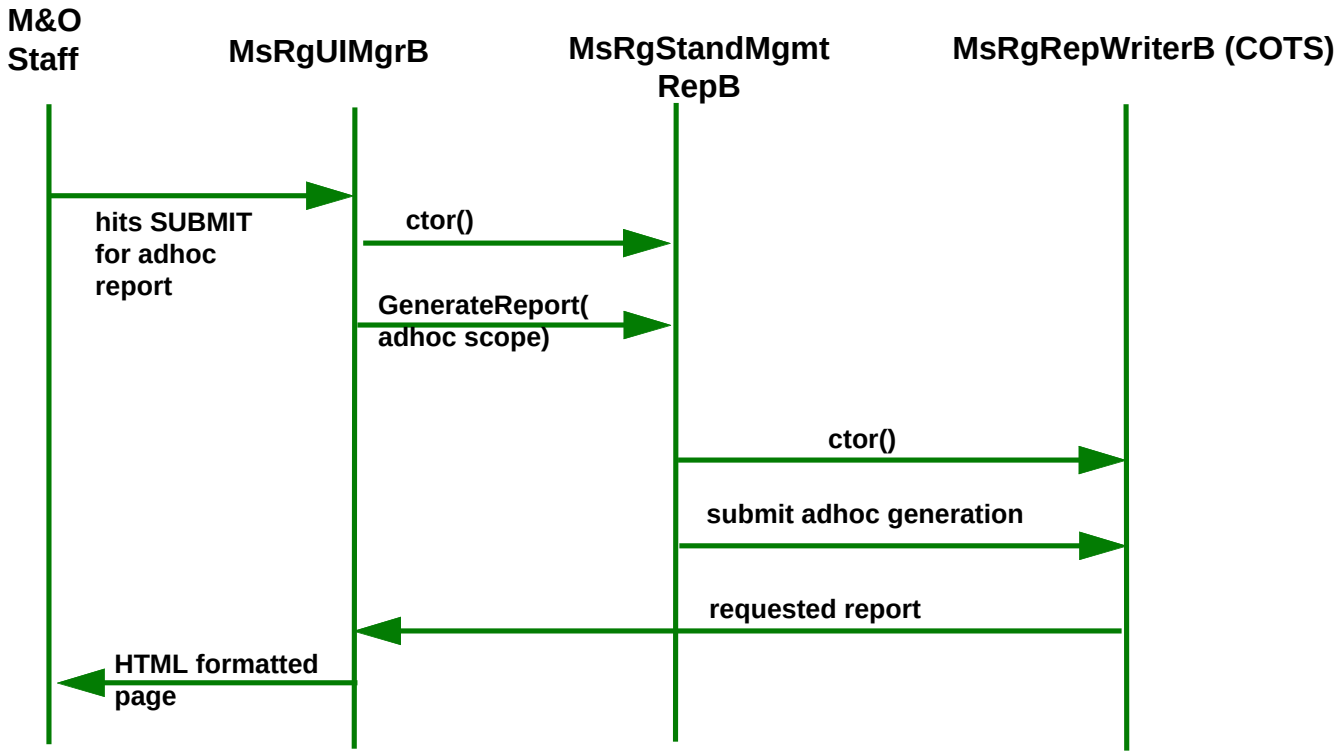
1. A member of the M&O staff at the SMC or LSM brings up the Management Reports page from a desktop HTML browser, enters login information and hits the SUBMIT button.

2. The reporting gateway object, MsRgUIMgrB, receives the login request, validates the user is a registered member of the M&O staff through the EcAcProfileMgr class, and returns the Report Selection page.

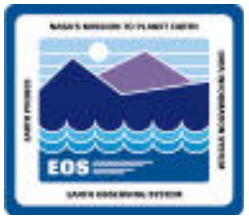
3. The M&O user selects a particular report from the report selection list and hits the SUBMIT button.

4. The MsRgUIMgrB gateway class receives the selection request, obtains the indicated pregenerated report from the MsRgPeriodicReportB container class, and returns it to the user.

Generate an Adhoc Report Scenario Diagram



Generate an Adhoc Report Scenario Description



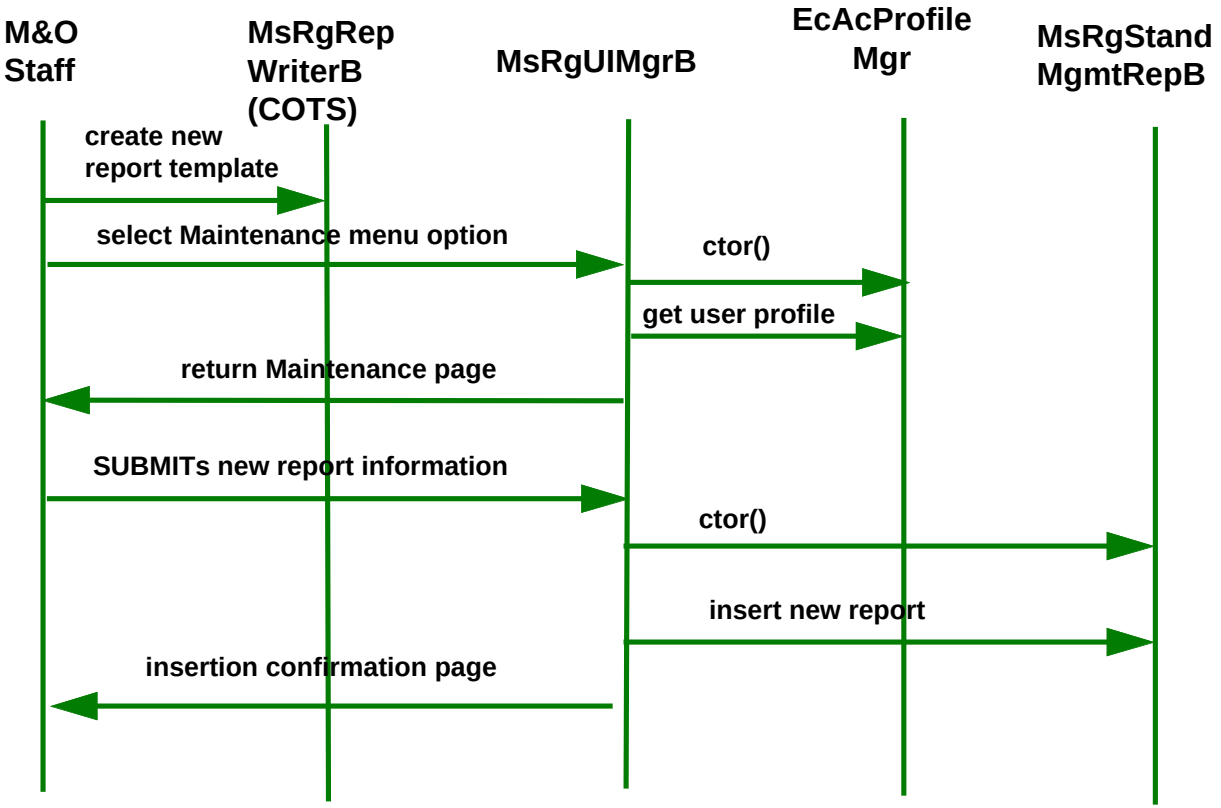
1. A member of the M&O staff who has already logged in through the Management Reports page, selects a standard report from the Report Selection page, enters a start/end time, and hits the SUBMIT button.

2. The MsRgUIMgrB class receives the report request with the specified report ID and adhoc time scope and, through the MsRgStandMgmtRepB class, submits a request to the MsRgRepWriterB class to generate the report but with the user specified time scope applied.

3. The MsRgRepWriterB COTS report writer generates the report.

4. MsRgUIMgrB receives indication of report completion from the MsRgStandMgmtRepB generate report method and formats the report for return to the requesting user.

Define a New Standard Report Scenario Diagram



Define a New Standard Report Scenario Description

1. The M&O database specialist creates a new report using the MsRgRepWriterB COTS class and saves it as a report template.

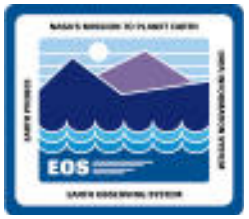
2. The M&O database specialist then selects the Maintenance option on the Management Reports main menu.

3. The MsRgUIMgrB reporting gateway class authenticates that the user is an M&O data specialist with privilege to update the standard report catalog and returns the maintenance page.

4. The specialist enters the title of the newly created report, the resource name of the report template, and optional scheduling parameters if the report is to be automatically generated on a periodic basis. The specialist then hits the SUBMIT button on the page.

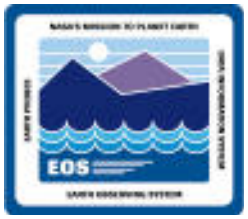
5. The MsRgUIMgrB gateway builds a new RgStandMgmtRepB entry from the user's parameters and inserts it in the catalog of standard reports. A confirmation is then sent back to the M&O data specialist that the report has been added.

Background Material



- **Functional Models**
- **Sample Reports**

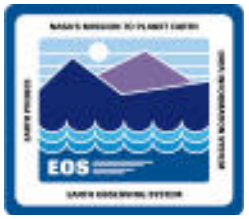
Functional Model



Operations for review:

Operation Name	MSS 305 Document Reference
MsRgRepGenSchedulerB	Sec 6.4.3.10
MsRgStandMgmtRepB::InsertNewRep	Sec 6.4.3.12
--::GenerateReport	--
MsRgUIMgrB::ProcessLogin	Sec 6.4.3.14
--::ProcessBrowse	--
--::ProcessAdhoc	--
--::UpdateCatalog	--
--::InsertUpdate	--

Functional Model
MsRgRegGenScheduler class



Functional Description:

The scheduler is a timer driven process which wakes up periodically and initiates generation of eligible standard reports in the MsRgStandMgmtRep catalog.

Where used: MsRgManager

Calling Arguments:

Name	Type	Description
none		

PDL:

Do Until Shutdown command received from Process Framework

Do for each periodic standard management report in the MsRgStandMgmtRep container class.

If the date/time of the last report plus the reporting interval is past.

Then initiate generation using MsRgStandMgmtRep::GenerateReport.

Set current time as time of last report

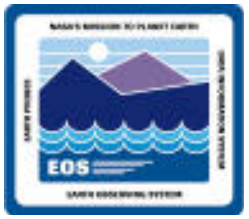
Endif

Sleep for n (config param) hours

Enddo

Enddo

Functional Model MsRgStandMgmtRepB::InsertNewRep



Functional Description:
This function inserts a new standard management report definition in the MsRgStandMgmtRep catalog.

Where used: MsRgUIMgr::InsertUpdate, Define new standard report scenario.

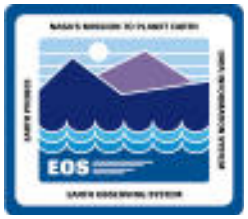
Calling Arguments:

Name	Type	Description
none		

PDL:

Save newReport instance as a persistent object in MsRgStandMgmRep container.

Functional Model MSRgStandMgmtRep::GenerateReport



Functional Description:
This function initiates generation of a standard management report per invocation instructions (Report Generator, time scope, etc.) in the MsRgStandMgmtRep catalog entry.

Where used: MsRgScheduler, MsRgUIMgr::ProcessAdhoc,

Generate an adhoc report scenario.

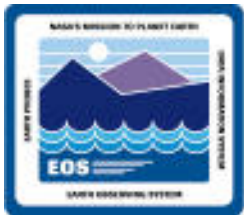
Calling Arguments:

Name	Type	Description
AdhocScope	Input	Adhoc time/domain scoping params for report.

PDL:

Using the procedure reference in the RepInvocationInfo attribute for this report and the optional AdhocScope parameters passed by the caller, invoke the associated COTS report writer to generate the report.

Functional Model MsRgUIMgrB::ProcessLogin



Functional Description:

This method is invoked through the httpd server when the M&O user enters a login ID requesting access to the management reports selection page. This method verifies the user is a member of the M&O staff by consulting the User Profile information and returns the report selection menu.

Where used:

httpd server, Browse standard report scenario.

Calling Arguments:

Name	Type	Description
CGI_Vars * CGI_Data	Input	CGI variables passed by httpd server
EcTChar * szUserid	Input	size of UserID in bytes

PDL:

Use the MsAcUserProfileMgr to access the login submitter's user profile.

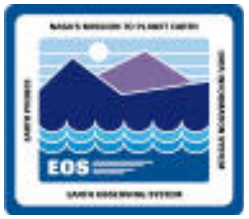
If the profile indicates an M&O person

  Then Return Report Generation Main Menu to the server

  Else Return authorization error.

Endif

Functional Model MsRgUIMgr::ProcessBrowse



Functional Description:

This method is invoked when the user selects the browse report option on the report selection page. It accesses the requested pregenerated report from the MsRgPeriodicReport container and returns it as an HTML document to the user's client browser.

Where used:

httpd server, Browse standard report scenario

Calling Arguments:

Name	Type	Description
CGI_Vars * CGI_Data	Input	CGI variables passed by httpd server
EcTChar * szUserid	Input	size of UserID in bytes

PDL:

Using MsAcProfileMgr and userID parameter passed through CGI, access user profile.

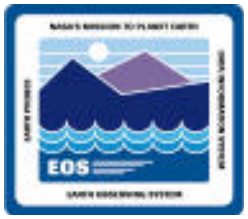
If not M&O person

Then Return authorization error page

Endif

Return requested report document.

Functional Model MsRgUIMgr::MsRgProcessAdhoc



Functional Description:

This method is invoked when the user requests an adhoc report using a standard management report template. The method extracts the adhoc (e.g. time/domain) scope parameters from the cgi variables and uses the report template entry in the MsRgStandardMgmtRep catalog to generate and return the adhoc report.

Where used:

httpd server, Generate an adhoc report scenario

Calling Arguments:

Name	Type	Description
CGI_Vars * CGI_Data	Input	CGI variables passed by httpd server
EcTChar * szUserid	Input	size of UserID in bytes

PDL:

Using MsAcProfileMgr and userID parameter passed through CGI, access user profile.

If not M&O person

Then Return authorization error page

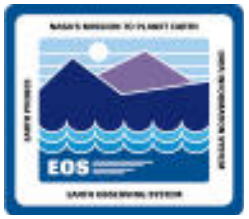
Else extract adhoc scoping parameters from CGI variables

Invoke MsRgStandMgmtRep::GenerateReport with adhoc scope parameters to generate report.

Return generated adhoc report document to httpd server.

Endif

Functional Model MsRgUIMgr::UpdateCatalog



Functional Description:
This method is invoked when an M&O data specialist requests insertion/update of a standard management report template in the MsRgStandMgmtRep catalog. The method verifies that the user is an M&O data specialist and returns the catalog update HTML page with blank or the current template definitions depending on whether an insertion or update/delete is to be performed.

Where used:

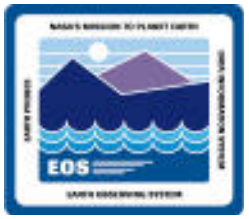
httpd server, Define a new report scenario

Calling Arguments:

Name	Type	Description
CGI_Vars * CGI_Data server	Input	CGI variables passed by httpd
EcTChar * szUserid	Input	size of UserID in bytes

PDL (next page)

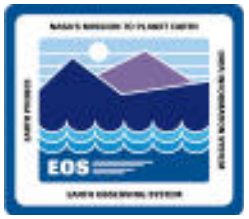
Functional Model MsRgUIMgr::UpdateCatalog (cont.)



PDL:

Using MsAcProfileMgr and userID parameter passed through CGI, access user profile.
If not M&O data specialist
  Then Return authorization error page
  Else If an existing report ID is in CGI variable,
    Then access report parameters for the report ID from MsRgStandMgmtRep catalog
    Else set report parameters to default value
  Endif
  Use TMPL_Vars to substitute fields in the Maintenance Page template with report parameters
  Return Maintenance Page to httpd server
Endif

Functional Model MsRgUIMgr::InsertUpdate



Functional Description:

This method accepts a new/revised standard management report template parameters entered on the report catalog Maintenance Page by the M&O data specialist and updates the MsRgStandMgmtRep catalog accordingly.

Where used:

httpd server, Define a new report scenario

Calling Arguments:

Name	Type	Description
CGI_Vars * CGI_Data	Input	CGI variables passed by httpd server
EcTChar * szUserid	Input	size of UserID in bytes

PDL:

Using MsAcProfileMgr and userID parameter passed through CGI, access user profile.

If not M&O data specialist

Then Return authorization error page

Else Extract Maintenance Page form entries from CGI variable and use to construct an

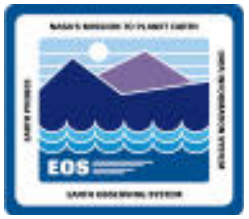
MsRgStandMgmtRep object.

Use MsRgInsertNewRep to insert new/revised report template in persistent storage.

Return update confirmation to user.

Endif

Standard Management Reports



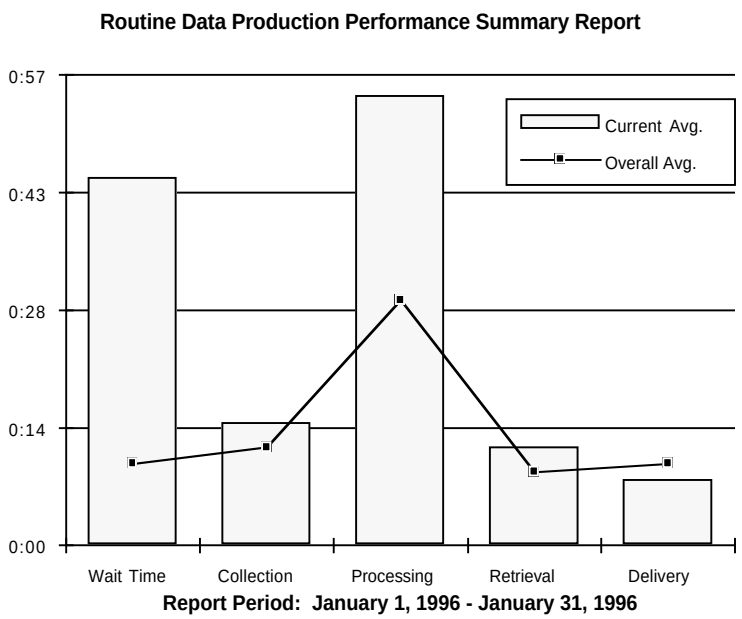
Categories

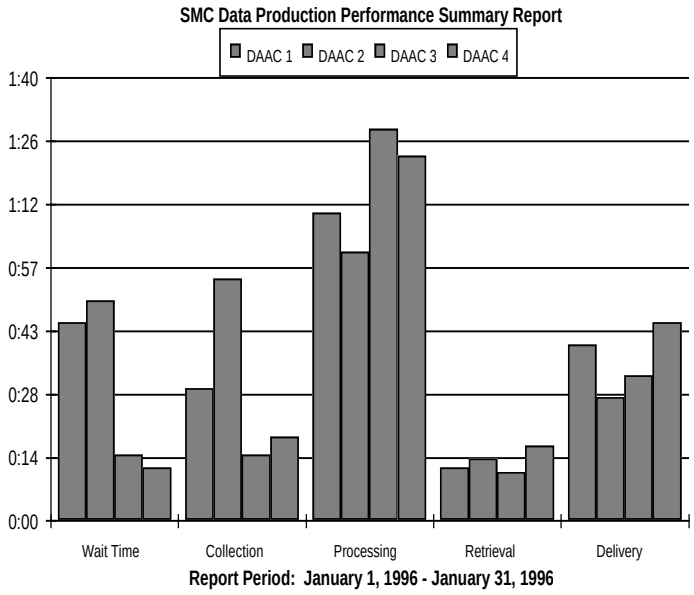
- **Performance/ Compliance**
- **Workload**
- **Resource Utilization**
- **User Satisfaction**
- **Profiles/Characterizations**
- **Accountability**

Performance/Compliance Reports

Designed to reveal short and long term trends in system performance relative to relevant benchmark requirement or performance goals, e.g.,

- **a report trending production operations comparing planned versus actual product generation times.**
- **a report trending the average turnaround time to resolve trouble tickets.**
- **a report indicating the reliability of system components using outage times obtained from the system fault management application.**



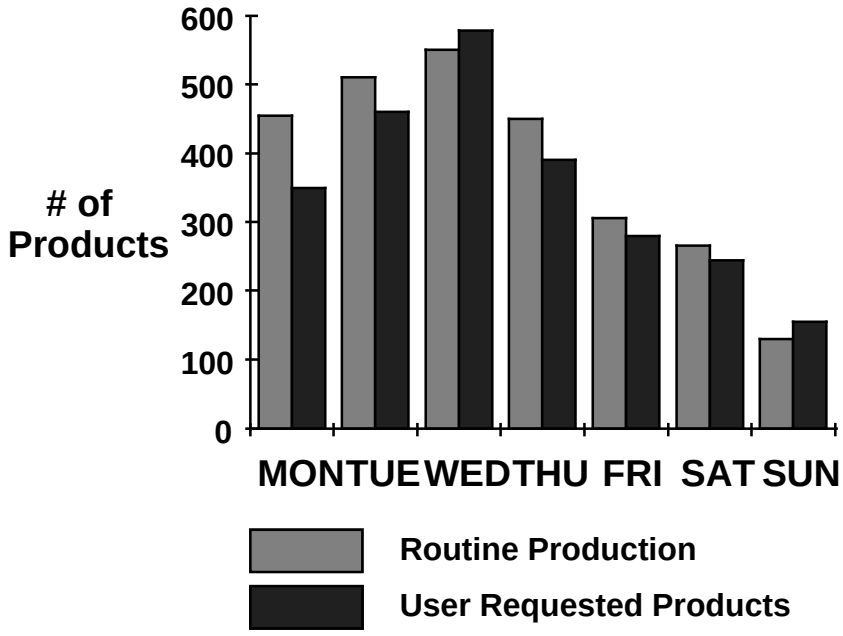


Workload Reports

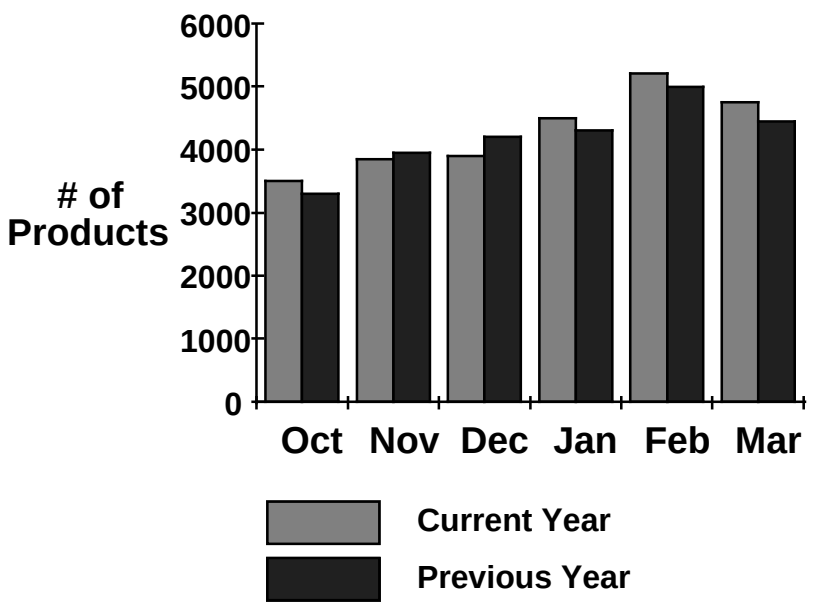
Designed to reveal short and long term trends in the system workload, e.g.,

- **a report indicating the number of products generated per day over a time period.**
- **a report indicating the number of problem reports per day submitted to the User Services group**

LSM Level



SMC Level

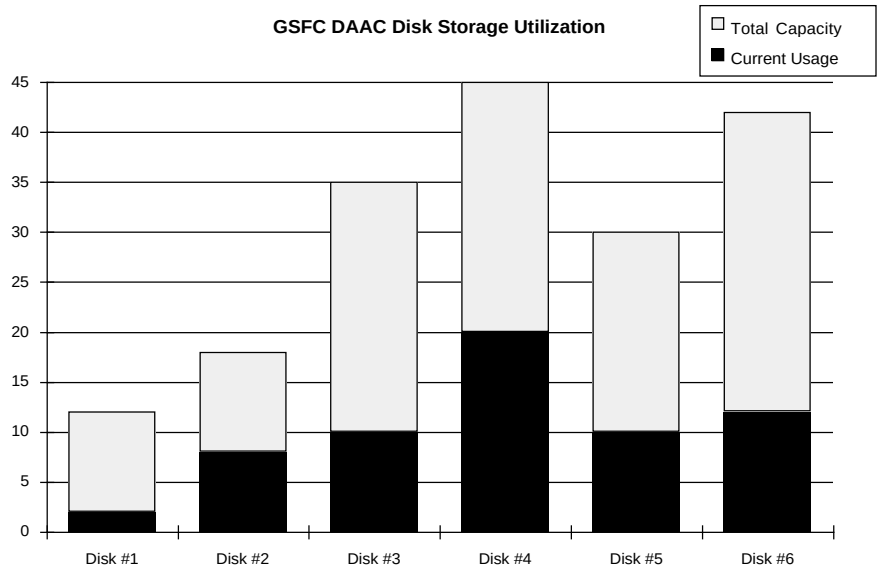


Resource Utilization Reports

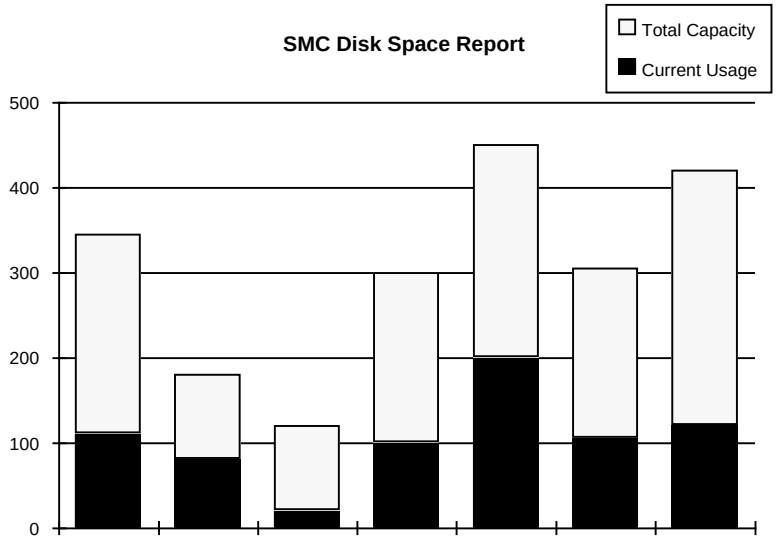
Designed to reveal short and long term trends in the utilization of resources, e.g.,

- **Reports on CPU/disk utilization in hosts, network utilization, as well as utilization of User Services personnel.**

LSM Level



SMC Level

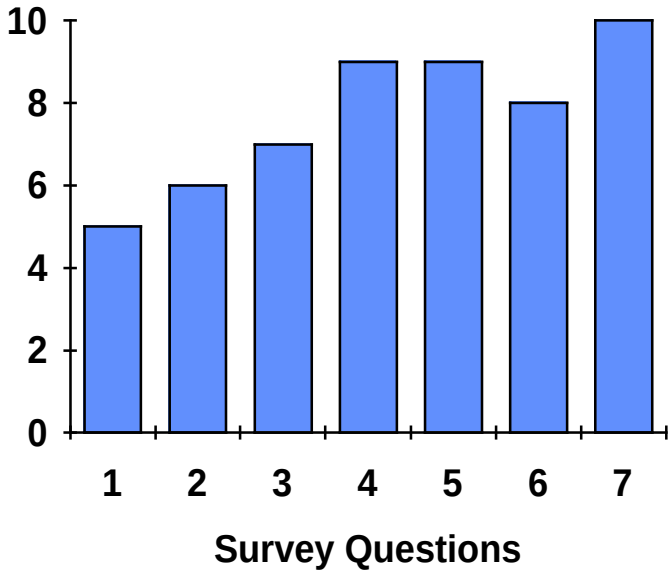


User Satisfaction Reports

Depict short and long term trends in the degree of user satisfaction with ECS products and services. Derived from user feedback information.

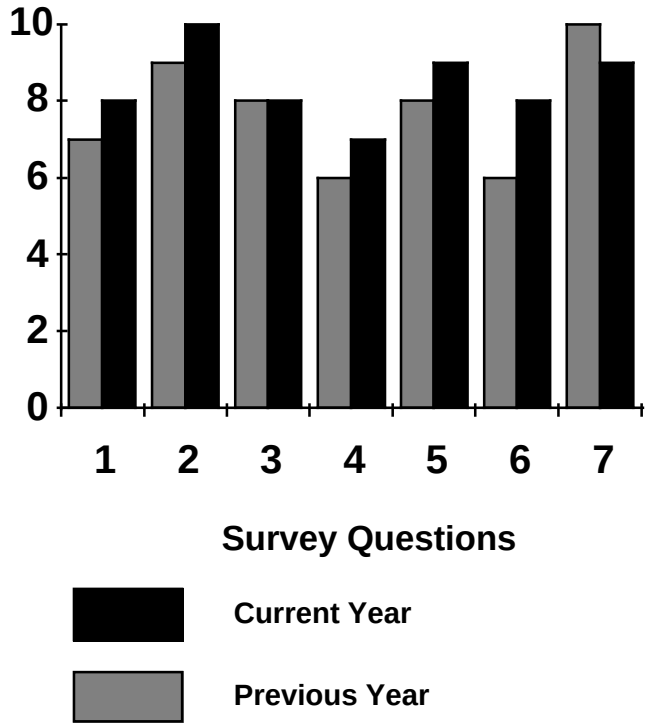
LSM Level

ORNL User Satisfaction



SMC Level

ECS User Satisfaction



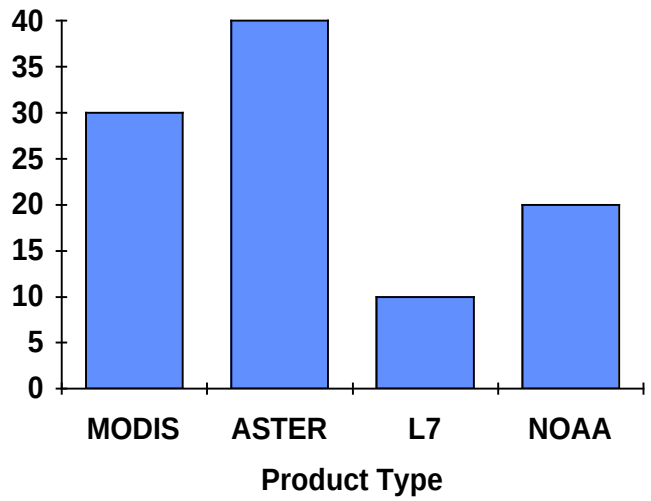
Sample Questions:
1. Product Turn-Around
2. Service Response Time
3. Product Quality

Profile/Characterization Reports

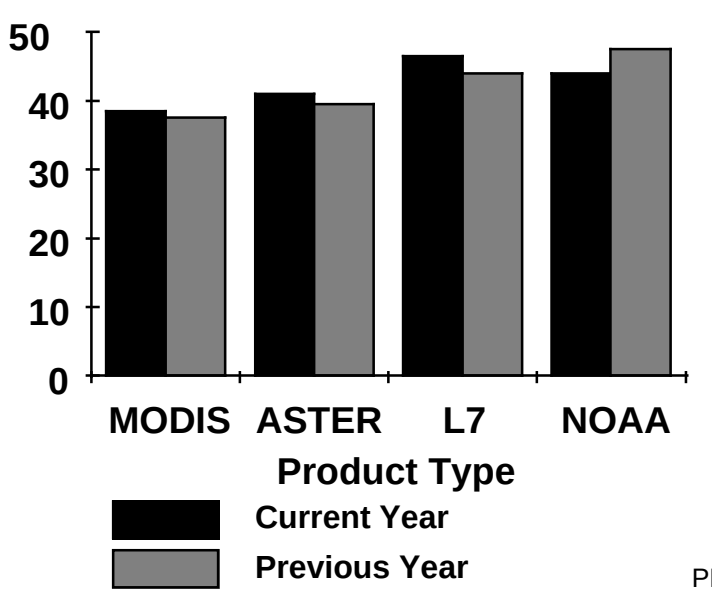
Provides detail on the makeup of ECS users, products and services, and problems, e.g.,

- **product generations broken down by product types, consumers, and the like.**
- **distribution of service requests from from the user client according to type i.e., directory search, guide search, inventory search, browse.**

LSM Level



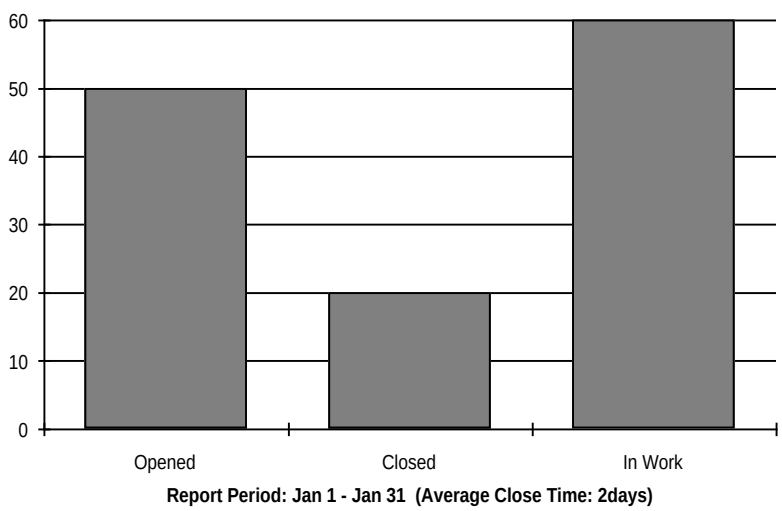
SMC Level



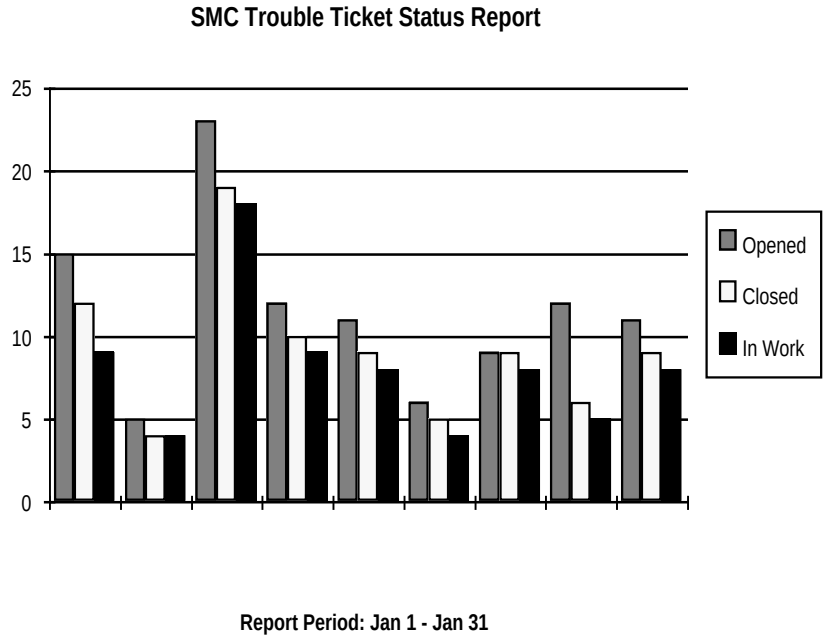
Accountability

Provide capability to audit/trace users and their access to system products and services from a resource usage, security, trouble, billing and accounting, and configuration management perspective.

LSM Level



SMC Level



Context Diagram